इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 7848 (1975): Studio spot lights for use in motion picture studios [MED 32: Photographic Equipment]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

IS : 7848 - 1975

(Reaffirmed 2005)

Indian Standard

SPECIFICATION FOR STUDIO SPOT-LIGHTS FOR USE IN MOTION PICTURE STUDIOS

UDC 621·326·73 : 628·946·041·6 : 727·98

© *Copyright* 1976

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 4

Price Rs 7·00

January 1976

Indian Standard

SPECIFICATION FOR STUDIO SPOT-LIGHTS FOR USE IN MOTION PICTURE STUDIOS

Cinematographic Equipment Sectional Committee, ETDC 47

Chairman

SHRI B. A. MISTRY
Pearl Mansion, 4th Floor, Queens Road, Bombay

Members	*Representing*
DR B. M. ADALJA	Film Federation of India, Bombay
SHRI M. BHAKTAVATSALA (*Alternate*)	
SHRI S. N. AGARWAL	Cinecita Private Limited, Bombay
SHRI S. P. AGARWAL (*Alternate*)	
SHRI N. P. BHATTACHARYA	National Council of Educational Research and Training (Department of Teaching Aids), New Delhi
SHRI J. N. BISARIA	Films Division (Ministry of Information & Broadcasting), Bombay
SHRI C. L. AGRAWAL (*Alternate*)	
SHRI Y. R. CHAUHAN	Cinesales Corporation, Delhi
SHRI R. S. CHAUHAN (*Alternate*)	
SHRI K. RAJAGOPAL CHETTY	Devi Cine Projector Manufacturing Co, Madras
SHRI K. N. GNANAPRAGASAM (*Alternate*)	
DR A. F. CHHAPGAR	National Physical Laboratory (Acoustics Division) (CSIR), New Delhi
COL R. C. DHINGRA	Ministry of Defence (DGI)
SHRI V. S. MURTHY (*Alternate*)	
SHRI BHUPAN GHOSH	Cine Mechanical Works, Calcutta
SHRI MANNA LADIA (*Alternate*)	
SHRI HARASH VARDHAN	Film and Television Institute of India (Ministry of Information & Broadcasting), Poona
SHRI S. B. THAKAR (*Alternate*)	
SHRI P. H. KAPILA	Kine Engineers, Bombay
SHRI C. S. RAMANATHAN	Hindustan Photo Films Manufacturing Co Ltd, Ootacamund
DR P. R. K. SARMA (*Alternate*)	
SHRI K. N. RAMASWAMY	Directorate General of Technical Development, New Delhi
SHRI BALRAJ BHANOT (*Alternate*)	

(*Continued on page* 2)

© *Copyright* 1976
INDIAN STANDARDS INSTITUTION
This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(*Continued from page* 1)

Members	*Representing*
Shri Ram Prasad	National Physical Laboratory (Optics Division) (CSIR), New Delhi
Shri M. Sankaralingam	Directorate General of Supplies & Disposals, New Delhi
Shri G. R. Bhatia (*Alternate*)	
Shri A. N. Subrahmanyan	Photophone Limited, Bombay
Shri R. V. Kelkar (*Alternate*)	
Shri V. J. B. Wadia	Wadia Lighting Equipment Private Ltd, Bombay
Shri Devid Nathan (*Alternate*)	
Shri N. Srinivasan, Director (Elec tech)	Director General, ISI (*Ex-officio Member*)

Secretary

Shri T. Rajaraman
Deputy Director (Elec tech), ISI

Indian Standard

SPECIFICATION FOR STUDIO SPOT-LIGHTS FOR USE IN MOTION PICTURE STUDIOS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 23 October 1975, after the draft finalized by the Cinematographic Equipment Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard deals with certain specialized categories of lighting equipment used primarily in theatres and film studios. This standard has been prepared with a view to standardizing the requirements of studio spotlights.

0.3 In preparing this standard assistance has been derived from BS 2063-1963 'Studio spot-lights for use in motion-picture studios' published by British Standards Institution.

0.4 For the purpose of deciding wheather a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard lays down the safety and performance requirements of studio spot-lights for use in motion picture studios, using tungsten filament lamps and employing a prismatic condenser lens and reflector, and designed to provide a substantially uniform beam, of variable divergence.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions in additon to those given in IS : 1885 (Part XVI/Sec 1)-1968† and IS : 1885 (Part XXXIV)-1972‡, shall apply.

---

*Rules for rounding off numerical values (*revised*).

†Electrotechnical vocabulary: Part XVI Lighting, Section 1 General aspects.

‡Electrotechnical vocabulary: Part XXXIV Cinematography.

2.1 Type Tests — Tests carried out to prove conformity to the requirements of this standard. These are intended to check the general qualities and design of a given type of spot-light.

2.2 Acceptance Tests — Tests carried out on samples, selected from a lot for the purpose of acceptance of the lot.

2.3 Routine Tests -- Tests carried out on every spot-light, to check the requirements which are likely to vary during production.

2.4 Barn Door — A device having four adjustable flaps, to modify the beam pattern of the spot-light.

2.5 Beam Divergence (in a Specified Plane) — The total angle in a specified plane containing the beam axis, between directions in which the intensity is 10 percent of the maximum intensity in that plane. If the plane is not specified, it shall be assumed to be horizontal.

2.6 Lamphouse — The body of the spot-light enclosing the lamp and holding the lens and reflector.

3. DESIGN AND CONSTRUCTION

3.1 Lamphouse — The lamphouse shall be made of a light alloy casting or sheet metal, and shall be free from sharp corners. It shall be so designed as to permit full access to the interior. The interior shall be adequately ventilated without the escape of stray light in excess of that permitted in **6.1**, and the spot-light shall be free from noise due to expansion or contraction.

3.2 Means for Varying the Beam Divergence — The means for varying the beam divergence shall be such that its setting does not alter under its own weight when the lamphouse is tilted, upwards or downwards, to any angle.

3.3 Provision for Lifting — Means for lifting shall be provided on the top of the lamphouse.

3.4 Stirrup and Clamp — The lamphouse shall pivot in a stirrup, and there shall be a substantial clamping device capable of securely clamping the lamphouse in relation to the stirrup at any angle of elevation or depression.

3.4.1 It shall be possible to operate the clamping device from the rear of the lamphouse.

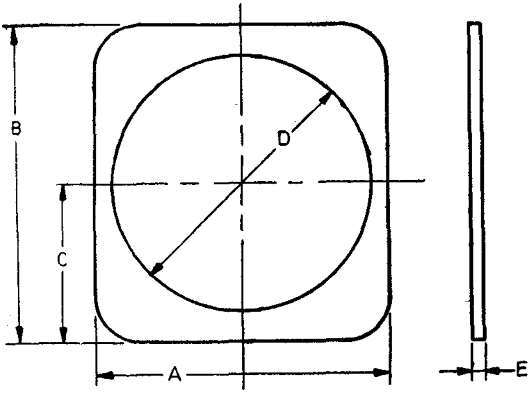
3.5 Spigot — Under consideration.

3.6 Mass — The overall mass of the spot-light, including the lamp, shall not exceed the following:

Rating	*Mass* (*Max*)
kW	kg
0·75	10
2	20
5	40
10	75

3.7 Diffuser Frames — The diffuser frames shall conform to the dimensions given in Table 1.

TABLE 1 DIFFUSER FRAMES



Sl No.	Dimension	Tolerance	Nominal Rating of Spot-light in kW			
			0·75	2	5	10
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		mm	mm	mm	mm	mm
i)	*A*	+ 0 − 2	170	260	395	535
ii)	*B*	Min	205	300	430	590
iii)	*C*	+ 2 − 0	85	135	200	270
iv)	*D*	Min	145	230	355	495
v)	*E*	Max	5	5	5	5

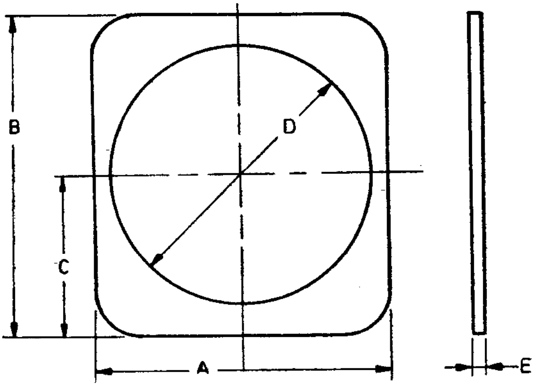
3.8 Barn Door Backplates — Barn door backplates shall conform to the dimensions given in Table 2.

NOTE — It is strongly recommended that barn doors for all spot-lights should have safety catches incorporated to prevent the barn door falling out of, or being dislodged from the lamphouse.

3.9 Overall Dimensions — The overall dimensions of the spot-lights shall be as given in Table 3.

TABLE 2 BARN DOOR BACKPLATES

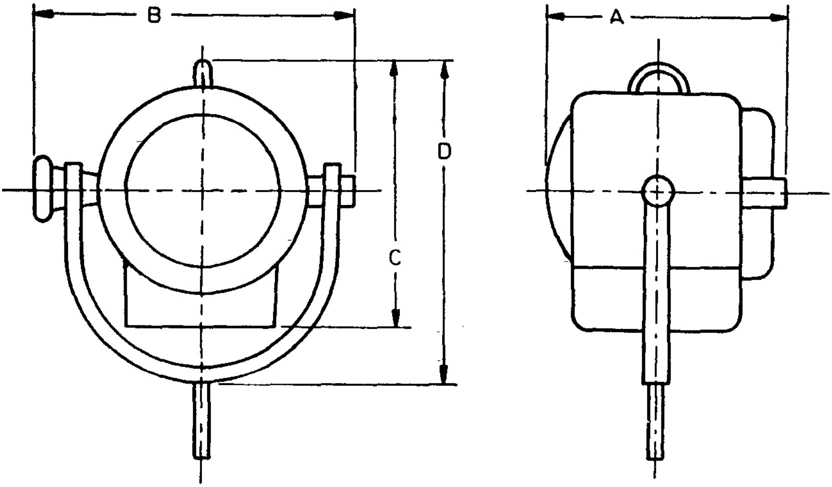
(*Clause* 3.8)



SL No.	DIMENSION	TOLERANCE	NOMINAL RATING OF SPOT-LIGHT IN kW			
			0·75	2	5	10
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		mm	mm	mm	mm	mm
i)	*A*	$^{+0}_{-2}$	170	260	395	535
ii)	*B*	Min	180	275	430	600
iii)	*C*	$^{+2}_{-0}$	85	145	200	270
iv)	*D*	Min	140	220	330	460
v)	*E* Excluding flaps	Max	5	5	5	5

TABLE 3 MAXIMUM DIMENSIONS OF SPOT-LIGHTS

(*Clause* 3.9)



Sl No.	Dimension	Nominal Rating of Spot-light in kW			
		0·75	2	5	10
(1)	(2)	(3)	(4)	(5)	(6)
		mm	mm	mm	mm
i)	Length (overall) *A*	360	460	580	760
ii)	Width (overall) *B*	305	460	610	760
iii)	Height of lamphouse (overall) *C*	330	480	660	810
iv)	Height of spot-light, including stirrup but not spigot, *D*	405	635	860	1 140

4. OPTICAL SYSTEM

4.1 Lamp — The spot-light shall be designed to take the appropriate rating of lamp complying with the requirements of 'Indian Standard Specification for studio spot-ligt lamps (under preparation)'. The preferred ratings of the lamp shall be 0·75 kW, 2 kW, 5 kW and 10 kW.

4.1.1 The maximum lamp rating for which the spot-light is designed shall be clearly marked in a suitable place on the outside of the lamphouse.

4.2 Lens — The lens shall be of the stepped (Fresnel) type, and made of hard borosilicate or equivalent heat-resisting glass. It shall be circular and have a plane rim.

4.2.1 The preferred dimensions of the lenses shall be as given in Table 4.

TABLE 4 DIMENSIONS OF LENSES

SL No.	DETAIL	NOMINAL RATING OF SPOT-LIGHT IN kW			
		0·75	2	5	10
(1)	(2)	(3)	(4)	(5)	(6)
		mm	mm	mm	mm
i)	Overall diameter	150^{+0}_{-3}	250^{+0}_{-3}	355^{+0}_{-3}	505^{+0}_{-3}
ii)	Rim width (radial) (*Min*)	3·2	3·2	4·8	4·8
iii)	Rim thickness	$6{\cdot}4^{+0}_{-0{\cdot}4}$	$6{\cdot}4^{+0}_{-0{\cdot}4}$	$9{\cdot}5^{+0}_{-0{\cdot}4}$	$9{\cdot}5^{+0}_{-0{\cdot}4}$
iv)	Departure of rim from a plane surface plate (*Max*)	0·4	0·8	1·6	3·2

4.3 Coloration — The transmission factors of the lens to light passed by the red and blue filters of a set of tri-colour filters shall each be within 5 percent of the transmission factor of the lens for light passed by the green filter.

4.3.1 For the purpose of this clause, light shall be taken to be radiation from a tungsten filament lamp operating at a colour temperature within the range of 3 000 to 3 250°K.

4.4 Mirror — A spherical mirror shall be fitted behind the lamp. The mirror shall be aligned on the optical axis of the lens.

4.4.1 The angle subtended by the mirror at the light source shall be adequate to ensure total coverage of the lens in the position of maximum beam divergence.

4.5 Stops — The extent of travel of the lampholder carriage shall be limited to preclude the possibility of damage resulting from the lamp touching the lens or from the mirror touching the lamphouse.

4.5.1 If, in addition, adjustable stops are provided for limiting the beam divergence, the design shall be such that the stops remain secure when the spot-light is used under normal operating conditions or is transported.

5. ELECTRICAL COMPONENTS

5.1 Lampholder — Lampholders for bi-post lamps shall be of substantial construction, and so designed as to maintain adequate electrical contact, appropriate to the current rating, between the sockets and the posts of the lamp. Provision shall be made for the expansion of the lamp posts when the lamp is in operation.

5.1.1 The lampholder shall be so positioned that the nominal light centre of the appropriate lamp lies on the optical axis of the lens and mirror, and at the centre of the radius of curvature of the mirror.

5.2 Flexible Cable — The spot-light shall be provided with 10 m of three-core tough rubber sheathed or braided flexible cable, complying with the requirements of IS : 434 (Part I)-1964*.

5.3 Switch — The spot-light shall be provided with a double-pole switch of adequate capacity, fitted as an integral part of the lamphouse. In the case of toggle switches the knob shall travel forwards towards the lens for the ON position.

5.4 Lamphouse Interior Wiring — The cables within the lamphouse shall have a suitable heat-resisting insulation, and natural rubber or PVC insulation shall not be used.

NOTE — It is recommended that the insulation be non-hygroscopic.

6. PERFORMANCE REQUIREMENTS

6.1 Optical Performance — When tested in accordance with **8.6**, the spot-light shall be capable of providing a beam of which the divergence (*see* **2.5**) in a horizontal traverse can be varied over a range extending at least from 15° (total angle) to 44° (total angle), and no light in excess of one percent of the axial intensity of the spot-light when set at the maximum beam divergence position shall be emitted in any direction outside an included angle of 90° containing the beam axis.

6.2 Lamphouse Ventilation — The ventilation of the lamphouse shall be such that when the spot-light is standing in free air at any angle up to 45° upwards or downwards from the vertical (with the lamp base down) the maximum temperature with in the spot-light shall not result in damage to any component.

---

*Specification for rubber-insulated cables: Part I With copper conductors (*revised*).

7. MARKING

7.1 The following information shall be clearly and indelibly marked:

- a) Name and/or trade-mark of the manufacturer or supplier;
- b) Type and serial number;
- c) Rated voltage, frequency and power input;
- d) Voltage and maximum wattage of the lamp to be used; and
- e) Country of manufacture.

7.1.1 The spot-lights may also be marked with the ISI Certification Mark.

Note — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

8. TESTS

8.1 Classification of Tests

8.1.1 *Type Tests* — The following shall constitute type tests:

- a) Insulation resistance (dry) test (*see* **8.2**),
- b) High voltage test (*see* **8.3**),
- c) Insulation resistance (humid) test (*see* **8.4**),
- d) Test for mechanical strength (*see* **8.5**), and
- e) Test for optical performance (*see* **8.6**).

8.1.2 *Acceptance Tests* — The following shall be carried out as acceptance tests:

- a) Insulation resistance (dry) test (*see* **8.2**),
- b) High voltage test (*see* **8.3**), and
- c) Test for optical performance (*see* **8.6**).

8.1.2.1 The sampling procedure and criteria of acceptance shall be subject to agreement between the supplier and the purchaser. In the absence of such an agreement the sampling procedure given in Appendix A may be followed.

8.1.3 *Routine Tests* — The insulation resistance (dry) test (*see* **8.2**) and high voltage test (*see* **8.3**) shall be carried out as routine tests.

8.2 Insulation Resistance (Dry) Test

8.2.0 This test may be carried out at the prevailing atmospheric temperature and humidity.

8.2.1 The insulation resistance shall be measured by the application of a dc voltage of 500 V for one minute between:

a) live parts of different polarity inside the fitting, and

b) live parts and external metal parts of the fitting.

8.2.2 The insulation resistance values thus measured shall be not less than 5 megohms.

8.3 High Voltage Test

8.3.1 All fittings shall satisfactorily withstand the application of 1 000 V rms between the parts specified in **8.2.1**.

8.3.2 The test voltage shall be approximately of sine-wave form having any convenient frequency between 40 to 60 Hz.

8.3.3 The full test voltage shall be applied gradually. The initial voltage shall not exceed 30 percent of the full test voltage and shall be increased uniformly to the full voltage within 30 seconds. The full test voltage shall be maintained for one minute after which the test voltage shall be diminished rapidly to 30 percent of its full value before switching it off.

8.3.4 There shall be no puncture or arcing during the high voltage test.

8.3.5 For routine test, the high voltage test may be carried out in the form of a flash test by the application of 1 500 V rms for a duration of approximately 5 seconds between the parts specified in **8.2.1**.

8.4 Insulation Resistance (Humid) Test

8.4.0 Fittings meant for indoor use shall be subjected to this test.

8.4.1 *Preconditioning* — The fitting shall be subjected to a damp treatment for a period of 24 hours by keeping it in a humidity chamber in which the relative humidity is not less than 95 percent and the temperature is 27 ± 2°C.

8.4.2 The insulation resistance of the fitting shall be measured in accordance with **8.2.1** not later than 10 minutes after its removal from the humidity chamber.

8.4.3 The insulation resistance, thus measured, shall be not less than 2 megohms.

8.4.4 After this test, the fitting shall satisfactorily pass the high voltage test specified in **8.3.**

8.5 Test for Mechanical Strength — Lighting fittings shall withstand all the mechanical stresses to which they may be subjected when installed in normal use and during maintenance. Compliance is checked by the following tests.

8.5.1 Blows are applied to the sample by means of a spring-operated impact-test apparatus.

8.5.2 The apparatus consists of three main parts, the body, the striking element and the spring-loaded release cone.

8.5.3 The body comprises the housing, the striking element guide, the release mechanism and all parts rigidly fixed thereto. The mass of this assembly is 1 250 g.

8.5.4 The striking element comprises the hammer head, the hammer shaft and the cocking knob. The mass of this assembly is 250 g.

8.5.5 The hammer head has a hemispherical face of polyamide having a Rockwell hardness of 100 HR, with a radius of 10 mm; it is fixed to the hammer shaft in such a way that the distance from its tip to the plane of the front of the cone when the striking element is on the point of release, is equal to the value shown for the compression in the table hereafter.

8.5.6 The cone has a mass of 60 g and the cone spring is such that it exerts a force of 20 N when the release jaws are on the point of releasing the striking element.

8.5.7 The hammer spring is such that the product of the compression, in millimetres, and the force exerted, in newtons, equals 1 000, the compression being approximately 20 mm. The spring is adjusted so as to cause the hammer to strike with an impact energy as shown in the following table, the spring compression being shown in that table:

Fitting or Part to be Tested	*Impact Energy*	*Compression*
	Nm	mm
Parts of lampholders, other than ceramic, integral with fixed fittings	0·35	17
Parts of ceramic lampholders	0·22	14

8.5.8 The release mechanism springs are adjusted so that they exert just sufficient pressure to keep the release jaws in the engaged position.

8.5.9 The apparatus is cocked by pulling the cocking knob back until the release jaws engage with the groove in the hammer shaft.

8.5.10 The blows are applied by pushing the release cone against the sample in a direction perpendicular to the surface at the point to be tested.

8.5.11 The pressure is slowly increased so that the cone moves back until it is in contact with the release bars, which then move to operate the release mechanism and allow the hammer to strike.

8.5.12 The sample is rigidly supported, cable entries being left open, knockouts opened, and cover-fixing and similar screws tightened.

8.5.13 Three blows are applied to every point that is likely to be weak, paying special regard to insulating material enclosing live parts and to bushings of insulating material, if any.

8.5.14 After the test, the sample shall show no damage within the meaning of this specification; in particular:

a) live parts shall not have become accessible;
b) enclosures and bushings shall show no cracks visible to the naked eye;
c) the effectiveness of insulating linings and barriers shall not have been impaired;
d) the sample shall continue to afford the degree of protection against moisture or dust, in accordance with its classification; and
e) it shall be possible to remove and to replace external covers without these covers or their insulating linings breaking.

8.5.15 Breakage of an enclosure is, however, allowed if it is backed by an inner cover which will withstand the test after removal of the enclosure.

8.6 Test for Optical Performance

8.6.1 The test shall be made on a complete unit, with a new lamp of the appropriate type and rating which has been aged at rated voltage for not less than half-an-hour. The lens and mirror shall be cleaned, and the spotlight shall be properly adjusted before the test.

8.6.2 The photometer of sufficient accuracy shall be used. As far as possible the same scale should be used throughout the test, but if more than one scale has to be used, overlapping readings on both scales should be taken at two or three adjoining stations.

8.6.3 The spotlight shall be firmly mounted in a vertical plane on a suitable turntable which can be rotated about a vertical axis through an arc of not less than 90° either side of the line joining the housing and the photocell. The axis of rotation shall correspond with the axis of the spigot. The turntable shall be provided with accurate means of measuring the angular displacement about this axis.

8.6.4 The photoelectric cell shall be mounted at the same height as the centre of the lens and squarely facing it, and shall be effectively screened from stray light.

8.6.5 The measurements shall be made with the lamphouse at the nominal distance from the photoelectric cell given the following table. The actual distance used, measured from the axis of rotation, shall lie within ± 20 percent of the nominal value and may be adjusted within this range to enable a suitable scale reading on the photometer to be obtained (*see* **8.6.7**).

Nominal Rating of Spot-light	*Nominal Distance for Beam Divergence Measurement*
kW	m
0·75	4
2	8
5	12
10	15

8.6.6 The lamp shall be operated at a voltage which is maintained within ± 0·5 percent throughout the test. The voltage shall be between 80 percent and 100 percent of the rated voltage of the lamp. The voltage may be selected within these limits to enable a suitable scale reading on the photometer to be obtained (*see also* **8.6.7**).

8.6.7 Measurements shall be taken with the spotlight adjusted to the minimum beam divergence (full spot) setting and to the maximum beam divergence (full flood) setting. For each of these settings the spotlight shall be directed by trial, so that the maximum intensity in the beam is directed on the photoelectric cell. (Care shall be taken to ensure that the response of the cell is within the scale range of the instrument being used.) For the position of maximum intensity, the reading on the instrument scale shall be adjusted to lie between three-quarters and full scale reading. This may be done in any convenient way, for example, by choice of instrument scale, adjustment of measuring distance, or adjustment of voltage applied to the lamp (within the limits prescribed in **8.6.2**, **8.6.5** and **8.6.6**).

In both settings the range of the measurements shall be over the whole width of the beam on either side of the optical axis until the readings are consistently less than one-tenth of the maximum intensity.

8.6.8 Measurements shall be made at intervals of 1° of arc when the spotlight is adjusted to the ' full spot ' setting, and at intervals of 3° of arc when the spot-light is adjusted to the ' full flood ' setting.

8.6.9 The readings shall be graphed, and from the graph shall be determined the points at which the light intensity is one-tenth of the maximum intensity. The total included angle corresponding to these points shall be recorded as the beam divergence for the particular setting.

APPENDIX A

(*Clause* 8.1.2.1)

SAMPLING OF STUDIO SPOT-LIGHTS FOR USE IN MOTION PICTURE STUDIOS

A-1. LOT

A-1.1 In any consignment all the lights of the same type and rating manufactured by the same factory, during the same period using the same process and material shall be grouped together to constitute a lot.

A-1.2 From each lot a certain number of light shall be selected at random and subjected to acceptance tests. Any light failing to satisfy the appropriate requirements specified in the specification shall be considered as defective.

A-1.3 The number of lights to be selected depend on col 1 and 2 of Table 5. These lights shall be taken at random.

TABLE 5 SCALE OF SAMPLING

SL No.	LOT SIZE	FIRST STAGE n	SECOND STAGE n	$2n$	c_1	c_2	c_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Up to 150	8	8	16	0	2	2
ii)	151 to 500	13	13	26	0	2	2
iii)	501 to 1 000	20	20	40	0	3	4
iv)	1 001 and above	32	32	64	1	4	5

A-1.3.1 In order to ensure the randomness for selection, random number tables shall be used (*see* IS : 4905-1968*).

---

*Methods for random sampling.

A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 Each of the lights selected in the first stage in accordance with col 2 of Table 5 shall be tested for acceptance tests. If the number of defectives is less than or equal to c_1 the lot shall be considered as conforming to the requirements of the standard. If the number of defectives is equal to or greater than c_2, the lot shall be considered as not conforming to the requirements of the standard. If the number of defectives in the first stage is between c_1 and c_2 a further sample of same size as taken in the first stage shall be taken and tested. If the number of defectives in the two samples combined is less than c_3, the lot shall be considered as conforming to the requirements of the acceptance tests otherwise the lot shall be considered as conforming to the acceptance tests.

INDIAN STANDARDS
ON
CINEMATOGRAPHIC EQUIPMENT

IS:	
1885 (Part XXXIV)-1972	Electrotechnical vocabulary: Part XXXIV Cinem graphy
4495-1968	Method of measurement of light output of cinematograph projects (narrow gauge film)
4496-1968	Screen luminance for the projection of 16 mm film by incandescent lam
4497-1968	16 mm portable sound-and-picture cinematograph projectors
5260-1969	Buzz-track test film (16 mm)
5261-1969	Sound focusing test film (16 mm)
5262-1969	Registration test film (16 mm)
5263-1969	Multi-frequency test film (16 mm)
5264-1969	3 000 Hz flutter test film (16 mm)
5265-1969	Sound-and-picture test film (16 mm)
5266-1969	400 Hz signal level test film (16 mm)
5353-1969	Screen luminance for the projection of 35 mm film on matt and directio screens
5636-1970	Cans for 16 mm projector spools
5673-1970	Methods of tests for still projectors
5674-1970	16 mm projector spools
5700-1970	Methods of tests for projection screens
5778-1970	Still projectors
6084-1971	Dimensions for 16 mm motion picture film
6085-1971	Dimensions for 35 mm motion picture film
6095-1971	Cans for 35 mm motion picture films
6096-1971	Dimensions for sprockets for 35 mm motion picture projectors
6097-1971	Dimensions for cores for motion picture and magnetic films
6119-1971	Carbon arc lamps for motion picture projection
6561-1972	Buzz-track test film (35 mm)
6562-1972	1 000 Hz balancing and signal level test film (35 mm)
6563-1972	Sound-focusing test film (35 mm)
6564-1972	Scanning beam uniformity test film (35 mm)
6933-1973	35 mm portable motion picture projectors
6937-1973	Overhead projectors
7390-1974	3 000 Hz flutter test film for 35 mm motion picture sound reproduc photographic type
7397-1974	Guide for electro-acoustic response of the final chain of motion pict sound reproduction system
7848-1975	Studio spot-lights for use in motion picture studios

---

INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephone : 27 01 31 (20 lines)   Telegrams : Manaksans

Regional Offices:

			Telepho
Western :	Novelty Chambers, Grant Road	BOMBAY 400007	37 97
Eastern :	5 Chowringhee Approach	CALCUTTA 700072	23-08
Southern :	54 General Patters Road	MADRAS 600002	8 37

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMEDABAD 380001	2 03
'F' Block, Unity Bldg, Narasimharaja Square	BANGALORE 560002	2 76
Kothi No. 90, Sector 18A	CHANDIGARH 160018	2 83